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10/765,772	01/26/2004	Gabe Cherian		2451

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EXAMINER

NGUYEN, HOA CAO

ART UNIT	PAPER NUMBER
2841	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/765,772

Applicant(s)

CHERIAN, GABE

Examiner

Hoa C. Nguyen

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38-58 is/are pending in the application.
- 4a) Of the above claim(s) 41-50 and 53-58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 38-40 and 51-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed on 8/21/07 has been entered. Applicant cancelled claims 1-37. Claims 38-58 are newly added.

Election/Restrictions

2. Newly submitted claims 41-50 and 53-58 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:
The independent claims 41 and 53 directed to a distinct structure of a joint means (solder joints) completely independent and different from the structure of the solder pad claimed in claims 38-41 and 51-52. Indeed, the independent structure of the joint means has been discussed in the Office action mailed on 3/1/06 that was subject to restriction and/or election requirement.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 41-50 and 53-58 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Therefore, only claims 38-40 and 51-52 are treated on the merits in this Office action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 38-40 and 51-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Washino (US 5484963).

Regarding claim 38, as clearly shown in figure 5, Washino discloses a pad 13 (metallized pads, col.5:1-5 and col.8:4) similar to pads used to join electronic devices to each other or to substrates, provided on an electronic device 11 (a substrate for connecting with an IC, col.1:9-15), the device having a first device surface (shown in the figure), the device having a number of such pads arranged on the first device surface, the pad having an elongated shape, with the pad length larger than the pad width, with a pad long axis in the general direction of the pad length and a pad short axis in the general direction of the pad width, the pad long axis and the pad short axis intersecting generally near the pad center.

But, Washino fails to disclose the pad is oriented in a way that the pad short axis is generally in line with a ray, which starts at the geometric center of the device and emanates towards the pad center, and could be within a few degrees off from the direction of the ray.

However, Washino discloses the pad is oriented in a way that the pad long axis, instead of the pad short axis, is generally in line with a ray, which starts at the geometric center of the device (considering the center is at the number 12 shown in the figure) and emanates towards the pad center. Hence, it is merely of matter of design choice depending upon particular applications to rearrange (or rotate) the pad such that the

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short axis is in line with the ray instead of the long axis (see the arrangement of terminal in col.8:9-13).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to rearrange or rotate the pad such that the pad short axis is generally in line with the ray in order meet a specific pitch requirement between row of pads. Moreover, it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Regarding claim 39, as discussed in claim 38 above, the pad 13 is oriented in a way that the pad short axis is generally in line with a ray, which starts at the thermal center of the device (considering the thermal center is at the number 12 shown in the figure) and emanates towards the pad center, and could be within a few degrees off from the direction of the ray.

Regarding claim 40, as discussed in claim 38 above, the pad is oriented in a way that the pad short axis is generally in line with a ray, which starts at the fixation point of the device (considering the fixation point is at the number 12 shown in the figure) and emanates towards the pad center, and could be within a few degrees off from the direction of said ray.

Regarding claim 51, as clearly shown in figure 5, Washino discloses an electronic device (a ceramic substrate, col.1:10) having a first device surface (the planar surface shown in the figure), and having a number of pads 13 (metallized pads, col.5:1-5 and col.8:4), similar to pads used to join such devices to each other or to substrates, arranged on the first device surface, each one of the pads 13 having an elongated

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shape, with the pad length larger than the pad width, with a pad long axis in the general direction of the pad length and a pad short axis in the general direction of the pad width, the pad long axis and the pad short axis intersecting generally near the pad center.

But, Washino fails to disclose each one of the pads 13 is oriented in a way that the pad short axis is generally in line with a ray, which starts at the geometric center or thermal center or fixation point of the device and emanates towards the pad center, and could be within a few degrees off from the direction of the ray.

However, Washino discloses the pads 13 are oriented in a way that each pad long axis, instead of the pad short axis, is generally in line with a ray, which starts at the geometric center or thermal center or fixation point (considering the point is at the number 12 shown in the figure) of the device and emanates towards the pad center. Hence, it is merely of matter of design choice depending upon particular applications to rearrange (or rotate) the pad such that the short axis is in line with the ray instead of the long axis (see the arrangement of terminal in col.8:9-13).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to rearrange or rotate the pads 13 such that each pad short axis is generally in line with the ray, which starts at the geometric center or thermal center or fixation point, in order meet a specific pitch requirement between row of pads. Moreover, it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Regarding claim 52, as shown in column 1, lines 9-15, Washino discloses that the device (the ceramic substrate) will be joined to a second device (a flip chip

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substrate), similar to the first device, the second device inherently having pads, similar to the pads on the first device (in order to joint to each other), and wherein each pad on the first device inherently match a corresponding pad on the second device (in order to connect to each other), so as to create matched sets of pads and matched sets of devices.

Response to Arguments

5. Applicant's arguments with respect to the cited prior art have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa C. Nguyen whose telephone number is 571-272-8293. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hoa C. Nguyen



TUAN T. DINH
PRIMARY EXAMINER